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MEMORANDUM FOR REGIONAL FORESTER

PRELIMINARY RESULTS OF 1934 INSECT LOSS SURVEYS AND RECOMMENDATIONS FOR CONTROL IN SOME EAST SIDE AREAS

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K. A. Salman
Berkeley, California
October 3, 1934.

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MEMORANDUM FOR REGIONAL FORESTER

PRELIMINARY RESULTS OF 1934 INSECT LOSS SURVEYS AND RECOMMENDATIONS FOR CONTROL IN SOME EAST SIDE AREAS.

Although field crews have not yet completed surveys of losses in the Modoc and Shasta National Forests, the results of surveys on the Lassen and Plumas National Forests have been completed. Trends have been observed that are important in consideration of areas in those two forests for control projects. In addition, those trends have been observed in the Modoc and Shasta National Forests and apparently they are typical of east side type infestations this season.

These data are submitted in preparation for a preliminary discussion of control projects for the coming winter at which time consideration must be given administrative and value factors before definite selection can be made. As climatic factors may possibly be of considerable importance in the selection or working of project areas, it is suggested that action be taken to start the projects as soon as selection of areas is made.

More complete data on losses and trends will be submitted in the future in Reports by the Bureau of Entomology.

METHODS OF ESTIMATING LOSSES-

The use of Keen's curve of percent of losses cruised during the active season of infestation has not, in recent years and in Region 5, proven satisfactory for determination of the correction factor to be applied. Accordingly, in all estimates made in this memorandum, the correction factor has been determined by consideration of the relation of the losses cruised in the fall of 1933 to the total loss of that season. It is hoped that computations can be completed during the coming winter that may provide a more satisfactory basis for determining the correction factors to be used. It is believed the estimates presented in this memorandum will be high if normal fall climatic conditions occur.

PLUMAS NATIONAL FOREST-

No control projects were undertaken during 1933 in the East Plumas Working Circle. It was considered the greater losses were in the poorer site areas and were representative of the effects of environmental pressure rather than vigor of insect attack. A somewhat different picture is presented by the loss figures of 1934. Table I gives cruise results of 1933 and 1934, as well as estimates of total losses for 1934.

Plots 2 and 4 are in areas of poor site conditions. Plots 1 and 5 are in areas of intermediate to good site conditions and plot 3 and traverses 7 and 9 sample areas of fairly good site conditions.

Estimates in the poor site areas show a slight (plot 2) and a considerable (plot 4) natural decrease in the losses, as well as the highest and the lowest board foot per acre loss. However, it has been noted that activity of the jeffrey pine beetle, which was the cause of much of the loss on plot 4 last season, has been markedly reduced. This factor may account for a large portion of the reduction on Plot 4.

In the intermediate zone of timber quality, the plots show an approximately equal volume loss (plot 1) and a marked increase (plot 5).

General observations on the infestation in the area are a marked increase in western pine beetle activity, a marked decrease in jeffrey pine beetle activity and a noticeable infiltration and increase of volume loss in the better site areas. On the basis of the results secured by the plot and traverse cruises, the north exposure in the southern part of the Last Chance Unit and the Bass Unit are control project possibilities. From the standpoint of losses and values the increase of 44% on the plot and per acre losses of 150 and 217 b.m., respectively, on the plot and two traverses, would justify consideration of the areas for control. However, there are no really satisfactory entomological boundaries for these areas and the work would be hampered considerably by climatic conditions.

LASSEN NATIONAL FOREST-

The results of cruises of sixteen plots and three traverses are given in Table II. Average estimated losses, based on plot results are 381 b.m. per acre. The infestation is largely caused by the western pine beetle and it has been noted that the jeffrey pine beetle has decreased considerably in importance. Heavier losses are being suffered this year in the better quality timber and in no sample can the losses be considered less than the probable increment. In many cases the loss of 1934 is probably several times the increment gain.

The two plots contained in the control project of 1933-1934 are the only ones not following the general increase trend. One plot is estimated to be about the same as last season and the other shows a decrease of 24%. However, losses remain 120 and 170 b.m. per acre, which is probably a greater than increment loss.

Almost any virgin timber area in the country covered by the cruises has sufficient infestation to warrant control from the standpoint of amount of loss. Three possibilities, when values, area in government ownership and date of utilization is considered, present themselves for consideration.

I. Fruit Grower's Sale Area.- In the sale area the south slopes, including the timber from the cutover area on Harvey Mountain east and including the Gordon Creek Unit, is a possibility. This area has been the

advantage of having fair to good entomological boundaries and of being marked for utilization within a reasonable period of time. Location in relation to camping facilities, the probability of difficult transportation during the period of treating and the possible necessity of splitting the work into a fall and spring control project are disadvantages.

Tentative estimates as to area and amount of work to be done are as follows:

	Government	Private	Total
Acreage	15,000	1,500	16,500
Trees to be treated			3,750
Volume B. M.			2,500,000
Stand, Vol.BM (from old estimates)			228,210,000

I would estimate that slightly over 2% of the present stand on the area is infested. Based on old timber estimates about 1.7% of the stand is infested this season.

No consideration has been given the Cave Mountain and the Brockman Flat units for control because of unmerchantability of stand or poor quality of timber.

II. Experimental Forest Area.- A second possibility for control lies in the area west of the cutover on Harvey Mountain and including Cone Mountain and the Experimental Forest. Estimated losses on all plots and traverses in this area are mostly well over 250 B.M. per acre and actual cruised losses have a minimum figure of 227 b.m. per acre if plot 1, on Red River land, is excepted.

This area would be easier of access in poor weather although climatic factors may make a division of the work necessary. In this unit, as in that mentioned above, if possible, all work should be completed by the fifteenth of December, with the last of the month a deadline for fall work. Spring activities would be hampered considerably by road conditions. Values concerned are sufficient to justify the project, particularly if investment in the experimental area is considered. However, date of utilization of timber outside the experimental area is rather distant. Entomological boundaries are good, except on the west, where patented lands carrying a moderate to heavy infestation occur. From the standpoint of effective control, this weakness may prove important.

Tentative estimates as to area and amount of work to be done are as follows:

	Government	Private	Total
Acreage	21.500	1.100	22.600
Trees, to be treated			6,000
Volume b. m.			4,750,000
Stand b.m.			about350,000,000

The 1934 loss is estimated to be about 2.5% of the present stand.

III. Little Valley Unit.- The third possibility for control is in the Little Valley Unit which was suggested in 1933 for control. This area would be more favorable for winter work from the standpoint of climate and transportation. However, there are several things to be said against the project, particularly because of its location. There is, this year, little break in the infestation to the west, south and east, private lands in those directions carrying infestations as heavy or heavier than in the government holdings. If a complete project area were to be selected, it would be necessary to tie in the work with that of last season on the west, which would mean the treating of a large area of poor quality timber. In addition, there would be no protection on the south, which was not the case with last years' project. There is no doubt that the infestation in this unit is about as heavy as in any portion of the forest. In addition, the western pine beetle is causing the major portion of the loss this season. The timber, with the exception of about 7 sections, is of a fringe type and is of low quality. It is felt that better results could be secured by treating perhaps less virulent infestations but under better conditions of protection and site.

Tentative estimates as to the area, number of trees and volume to be treated are as follows:

	Government	Private	Totals
Acreage	14,750	1,250	16,000
Trees, to be treated			6,750
Volume b. m.			4,250,000
Stand			168,000,000

The loss is estimated to be about 8.5% of the stand in the better timber and, on a basis of the timber estimate of Evans (1931), is probably near an average of 6.% for the entire area.

K. A. Salman
Associate Entomologist

Berkeley, California
October 3, 1934

TABLE I

Plumas National Forest

Map Symbol	1933 Losses						1934 Estimates							
	1933						1934						Rel.to:	
	1st cruise			Total Loss			Cruised			Estimated			1933:	Plot Acreage
	Date	Trees	Vol. B.M.	Trees	Vol. B.M.	BM per A	Date	Trees	Vol.B.M.	BM per A	Vol.B.M.	BM per A	Est.	
1	9/28	18	17970	51	42840	133	8/30	20	25200	79	41630	131	- 2%	320
2	9/23	79	77210	135	146330	457	8/25	53	78300	245	129980	406	-11%	320
3	9/21	7	13270	16	33300	104	8/23	9	28800	90	47940	150	+44%	320
4	9/18	47	74250	67	84270	263	8/22	22	20880	65	34680	108	-59%	320
5	9/26	22	28890	62	63480	198	8/29	47	66780	209	110850	346	+75%	320
TOTAL		173	211990	331	370000	231		151	220060	138	365280	228	- 1%	1600

Traverse				
7	60 B.M. per acre	131	217	400
9	48 do	131	217	510

% Cruised 1933 57.2
Correction factor 1934 x 1.66 (60%)
Estimated average decrease 1934, -1%

TABLE II

LASSEN NATIONAL FOREST

1933 Losses - 1934 Estimates

Map Symbol:	1933 1st cruise: Date	Trees	Vol.Bd.	Total Loss: Trees	Vol.Bd.	Bd per A:	1934 Cruised: Date	Trees	Vol.Bd.	Bd per A:	Estimated Vol.Bd.	Bd per A:	Rel.to'33: Estimated	Plot Acreage
1	8/21	21	20790	56	56530	185		54	39480	130	70900	247	+36%	320
2	8/31	23	20770	95	65570	207		82	79660	248	159320	498	+86%	320
3	10/12	41	26240	69	77690	243	9/24	74	83760	262	167520	524	+116%	320
4	Partially cut 1934													
5	10/ 5	18	21130	35	33960	106	9/25	35	34870	109	69740	218	+105%	320
6*	10/ 6	40	31170	72	38500	120	9/14	42	19210	60	38420	120	+ 0.3%	320
7	10/13	21	29440	46	45160	141	9/12	58	31020	97	62040	194	+ 37 %	320
8	10/10	42	46070	107	103010	322	9/11	78	86470	270	172940	540	+ 68 %	320
9	10/11	51	34880	123	88510	277	9/20	72	48530	152	97060	303	+ 10 %	320
10	8/16	8	4580	68	32030	100	9/10	70	42510	133	85020	266	+165 %	320
11	8/18	6	13860	30	51510	161	9/15	45	71260	223	142520	445	+177 %	320
12	8/30	9	16970	16	35170	110	9/13	14	33870	106	67740	212	93 %	320
13*	8/24	11	15450	51	71920	225	9/12	27	27190	85	54380	170	- 24 %	320
14	10/ 7	51	74320	104	114180	357	9/17	165	193750	605	387500	1211	+239 %	320
18	Accuracy of 1933			19	13000	81	9/18	70	45630	285	91260	570	+602 %?	160
19	Losses Doubtful			26	21900	137	9/18	140	77080	482	154160	965	+604 %?	160
Total, less 18 & 19 & Aver.		343	362600	865	835540	201		777	781500	190	1563160	381		
Traverse 1	% Cruised 1933 - 45.0%									227		454		
2	Correction factor 1934 - x 2 (50%)									255		510		
3	Est. Ave. Increase 1934 + 69%									412		824		440 A
*	Treated 1933- 1934 N I R A Cont.													